Leveraging SBIR Funding for Technology Commercialization

Brandon Mason, Technology Team Director
Small Business Development Center

Small Business Development Center

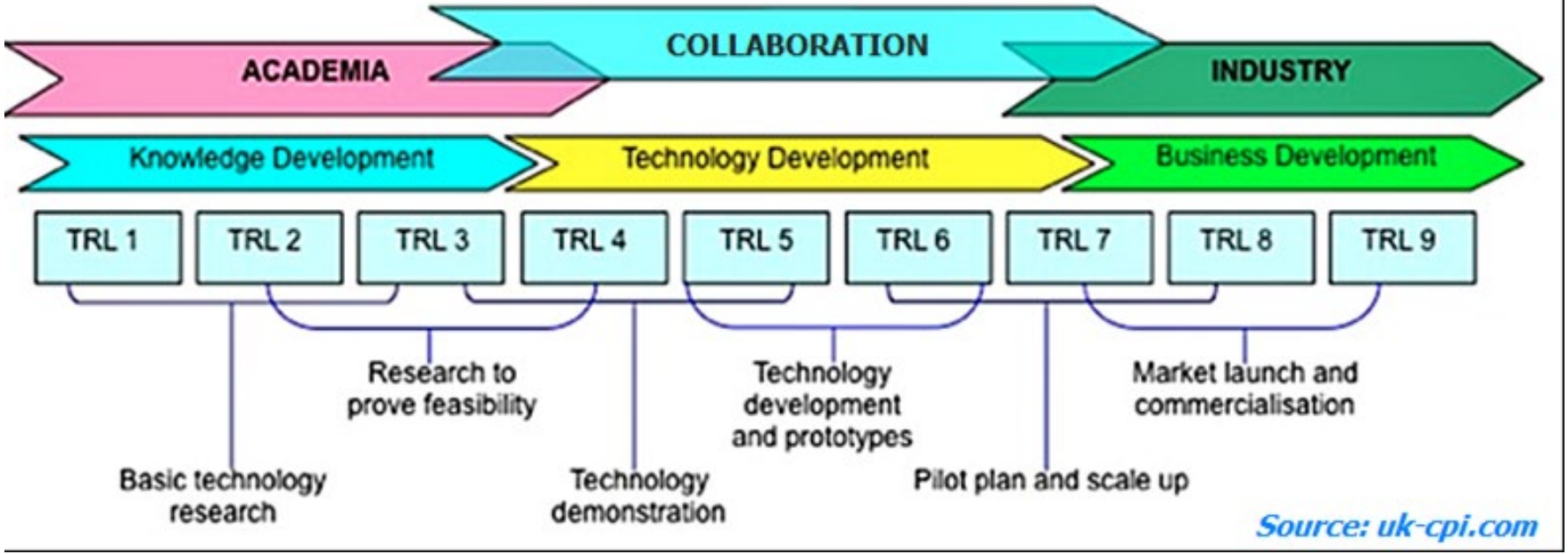
❖ What does the SBDC do?

- 22 locations throughout the state of Maryland
- Affiliated with the University of Maryland, Frostburg State University, Salisbury University, College of Southern Maryland and Carroll Community College
- We work closely with Maryland based HBCUs Morgan State, Bowie State, and University of Maryland Eastern Shore
- Free Confidential One-on-One Business Consulting, Business Classes and Workshops, Training Seminars, Subject Matter Experts, Technical Help & Industry Research, Strategic Business Planning, Compliance Assistance, Marketing Strategy, HR Support, Technology Advisement, and Growth and Succession Planning.
- www.marylandsbdc.org

SBA

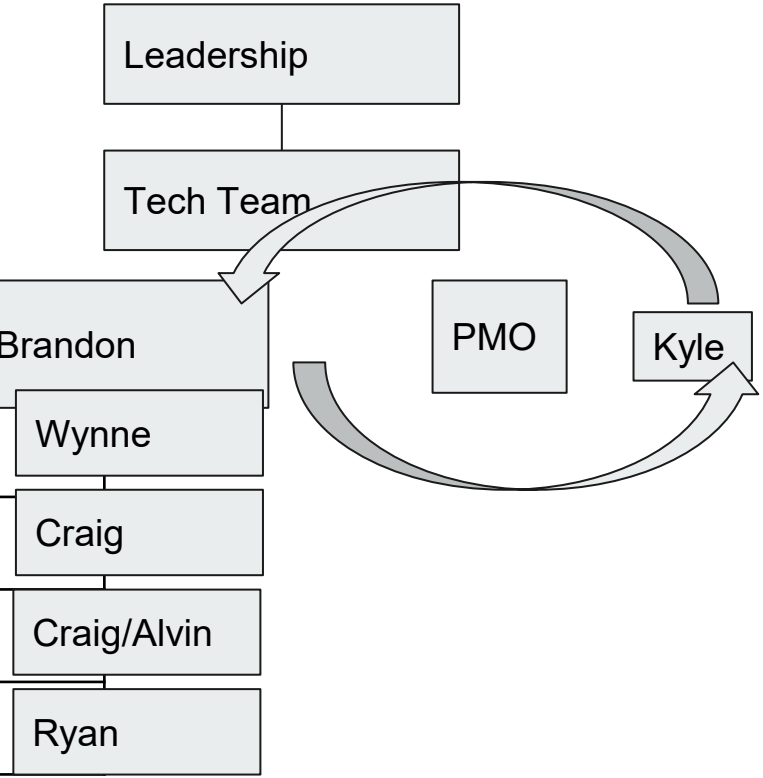
U.S. Small Business Administration

The Innovation Chain: Converting Science into Wealth



Structure

DREAM	TRL 0-4
BUILD	TRL 4-7
SELL	TRL 7-10
SECURE	Cybersecurity
DEFEND	Defense, TT



AMERICA'S SBDC MARYLAND

Cross Capability Matrix

SME	TRL 1-4 Academia	TRL 3-7 Collaboration	TRL 7-10 Industry
SBIR (P1, P2, P3)	✓	✓	✓
Project Management	✓	✓	✓
Tech Transfer	✓	✓	✓
Manufacturing		✓	✓
Commercialization	✓	✓	✓
Cybersecurity			✓
Defense	✓	✓	✓
Equity Financing	✓	✓	✓

AMERICA'S SBDC MARYLAND

Major Activities:

- Collaboration
  - MBIA, MD Tech Council, UM Ventures, iCorps, MAVRIC, CISCO, Maryland International Business Incubator, MEP, TechBridge, Maryland Innovation Center, TEDCO, DEFTECH, Minority Inventors & Innovators Roundtable, Maryland Manufacturing
- Minority Inventors & Innovators Roundtable
- Mentorship Partners (MTC, iCorps, TEDCO, MEIA, Bethesda Green)
- Transforming Manufacturing in a Digital Economy Workgroup
- SBIR Training Workshop (TEDCO/OST Global)
- Multiple Client SBIR Wins per year
- Maryland Business Opportunity Center

AMERICA'S SBDC MARYLAND

SBIR/STTR Three Phrase Process

01	**Proof of Concept**	• 6-12 month period of performance • Feasibility Study • $225,000 cap
02	**Full R&D**	• 24 month period of performance • Prototype Development • $1,500,000 cap
03	**Commercialization**	• Non-SBIR/STTR Funds (public or private) • Can be non-competitive • Small business retains IP

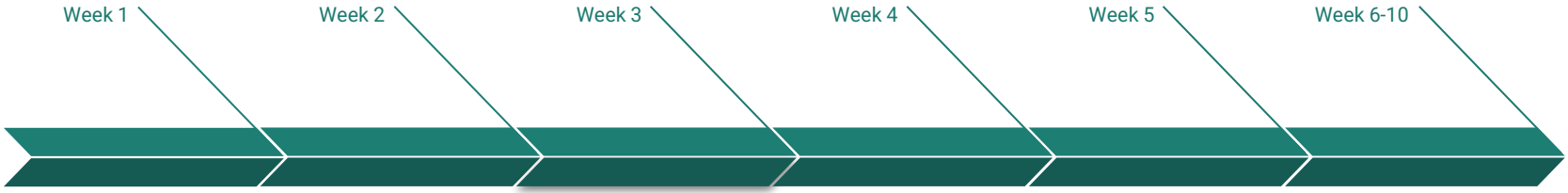
Differences between SBIR/STTR

	SBIR	STTR
PARTNERING REQUIREMENT	Permits partnering	Requires a non-profit research partner
PRINCIPAL INVESTIGATOR	Primary employment (>50%) must be with the small business	PI may be employed by either the research institution or small business (Check solicitation)
WORK REQUIREMENT	May subcontract up to 33% (P1), 50% (P2)	40% small business, 30% Research Partner
PROGRAM SIZE	~$3.28B	~$429.3M
MAJORITY VC OWNERSHIP	Allowed by some agencies	Not allowed
PARTICIPATING AGENCIES	11 Agencies (extramural R&D budget > $100M)	5 agencies (extramural budget >$1B)

What Skills do I need?

- An **innovative** concept
- Understanding an agency's needs
- The application of the **scientific method** to a **work plan**
- Developing a business case
- **Explicitly** following an agencies guidelines
- Dealing with lots of red tape
- **Multiple** registrations
- Developing a team and/or partnerships
- **Financial** preparation
- **Time** management

Typical Proposal Process



Review Topics

Generate Questions
Study Solicitation

Seek Help & Ask Questions

Reach out to topic authors,
Find Assistance

Others?

Registration and Drafting

Start Drafting Technical Proposal

Complete Required Registrations

Technical

Grapple with issues in technical proposal

Develop Team

Financials

Start securing assistance with the financials

Wrapping Up

Provide draft for review

Gather Feedback
EDIT

Submit 2 days early!

Still want to write an SBIR?

- What can you expect?
  - ***150 hours*** of dedicated time over the next ***ten weeks***
  - ***Learn in-depth*** about the agency
  - ***Analyze*** the requirements
  - ***Write*** a compelling ***15-20 page*** work plan
  - ***Develop*** a commercialization plan
  - ***Prepare*** Financials
  - ***Register*** with ***multiple government-run*** online systems
  - ***Develop*** relationships with others

Choose Wisely

- Preparing a **winning** SBIR/STTR proposal is a **tremendous** of work.
- The key is to **pick battles you can win**
- Choosing the **right topic/agency** is the most overlooked (and most important) factor of success
- Factors in play include:
  - Technology vs. capability approach
  - Agency (and sub-agency) selection
  - Topic selection

Contract

Agency needs a SPECIFIC solution

These proposal calls are narrow and require you present a specific solution that solves or answers the needs of the proposal request.

- DoD
- NASA
- DOC/NOAA
- DHS
- DOT
- EPA
- DoEd

Grants

Agency is looking for a BROAD Range of solutions

Proposals address a general topic area with potential commercializable solutions.

- NSF
- DOE
- USDA
- DOC/NIST

Both

Agency is looking for both broad and specific solutions

Proposals address both specific solutions and broad areas for innovation.

- HHS

Choosing the Right Topic/Agency

Step 1: Identify Your Technology/Capability Approach

- Do you have a specific technology in mind? -> Technology Approach
- Do you want to address a capability gap? -> Capability Approach

Step 2: Select the Appropriate Agency

- Does your project align with a specific agency's mission? -> Select Agency
- Are you open to multiple agencies? -> Research Multiple Agencies

Step 3: Match Your Project to the Agency's Needs

- Does the agency require a specific solution? -> Contract
- Is the agency looking for a broad range of solutions? -> Grant
- Does the agency need both specific and broad solutions? -> Both

Step 4: Evaluate Topic Selection

- Does the topic align with your project's strengths? -> Yes -> Proceed with Topic
- No -> Research Other Topics

Step 5: Assess Feasibility and Resources

- Do you have the necessary team and resources? -> Yes -> Develop Proposal
- No -> Seek Partnerships and Additional Resources

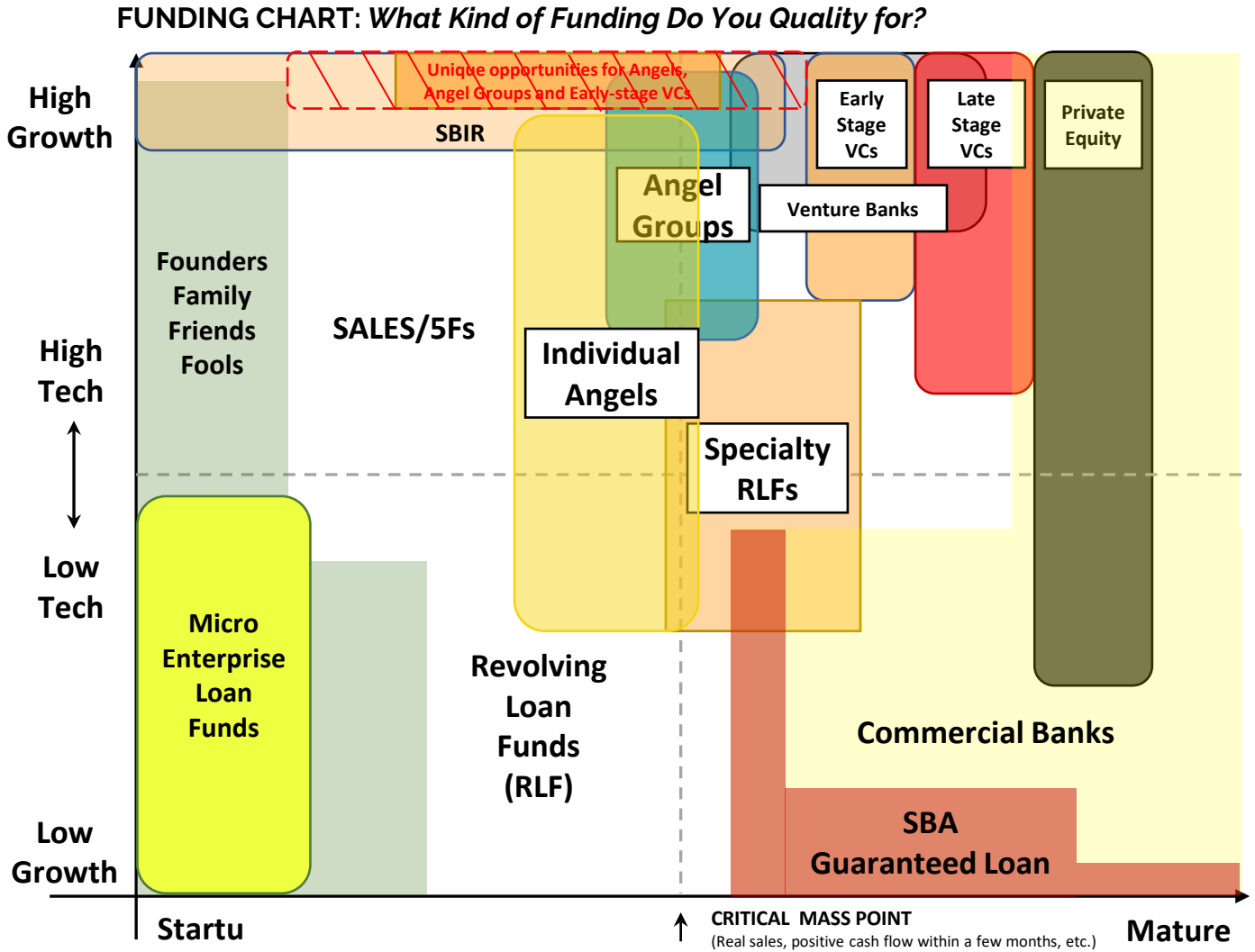
In Support of Commercialization

SBIR cannot be used to directly commercialize technology but there are tools for SBIR firms to help

- **Commercialization Assistance**
  - Mentoring of SBIR firms (Phase Zero,TEDCO, SBDC, APEX, MBOC, DEFTECH, UMD)
  - Identification of market opportunities
- **I-Corps**
  - Six-week "Commercialization Bootcamp" for small businesses managed by National Science Foundation
  - Businesses learn what their customer base needs vs selling what they have
  - UMD iCorps Extension Program
  - Significant factor in SBIR wins →Validates business model

Commercialization Strategies

- SBIR **only** funds **research and development**
- To bring a product to market **costs much more** than an SBIR budget
- Someone in the firm will have to **always be pursuing $$$$$$**
- At this point – the agency merely wants to know what is the **overall approach you will use**
- Three common strategies – **licensing**, **strategic alliance**, **scale up** for production


FUNDING CHART: What Kind of Funding Do You Quality for?
High Growth
High Tech
Low Tech
Low Growth
Unique opportunities for Angels, Angel Groups and Early-stage VCs
SBIR
Early Stage VCs
Late Stage VCs
Private Equity
Angel Groups
Venture Banks
Founders Family Friends Fools
SALES/5Fs
Individual Angels
Specialty RLFs
Micro Enterprise Loan Funds
Revolving Loan Funds (RLF)
Commercial Banks
SBA Guaranteed Loan
Startu
CRITICAL MASS POINT
(Real sales, positive cash flow within a few months, etc.)
Mature

MIPS: Maryland Industrial Partnerships

$10K from company; $90K from UMD directly to a lab
(NO OVERHEAD)

One or two year projects

Research and Development
Research may be in the broad areas of engineering, computer science, physical sciences and life sciences.

Education and Training
Projects may also help a company plan and develop industrial training programs for its employees.

http://www.mips.umd.edu/

MARYLAND TECHNOLOGY ENTERPRISE INSTITUTE
MTECH VENTURES

Chesapeake Bay Seed Capital Fund

$100,000-$500,000 in seed and Series A rounds

Dilutive / Equity

co-invest with other funds

Criteria

Have a product prototype

Can demonstrate product-market fit

A thoughtful commercialization plan

Can demonstrate a quantifiable reduction in nitrogen, phosphorous and/or sediment in the Chesapeake Bay

http://mtech.umd.edu/ventures/chesapeake-bay-seed-capital-fund.html

Maryland Momentum Fund

$10 million USM Fund
Dilutive/Equity investments up to $500K
Must be USM student, alum, faculty, or IP
Must have matching investment

http://momentum.usmd.edu/

iCorps

UMD's Introduction to I-Corps Course is a short, intense, experiential, bootcamp-style cohort. Participants will work closely with teammates, with other teams, and with mentors and instructors to develop business models around their innovations. This short I-Corps course will introduce you to the concepts of business model generation and the process of customer discovery, and will give you the tools to begin to determine whether your innovation, in its current stage, has product-market fit. UMD I-Corps: Program Details

Additional Resources

UMD Faculty and Graduate Student Startup Guide

UMD Innovation Gateway
Innovation Starts Here

Market Research

Maryland Innovation Initiative

Robert H. Smith School of Business, UMD, Maryland Business: Rebooted

Maryland Business Express

Maryland APEX | Assist & Win

TEDCO

UNIVERSITY OF MARYLAND

Contact Information

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Contact us for more information.
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Backup Slides

Innovation & Entrepreneurship Ecosystem

UM Ventures
- EIRs, Site Miners
- IP protection
- Business Skills
- Funding

Mtech
- I-Corps
- Idea Factory
- Incubator Space
- Funding

UMD Libraries
- Market Research databases
- Maker Space

Quantum Startup Foundry
- Space
- Accelerator Program

Discovery District
- Space
- Connections to industry

USM
- Momentum Fund

SBDC
- Consulting
- Training

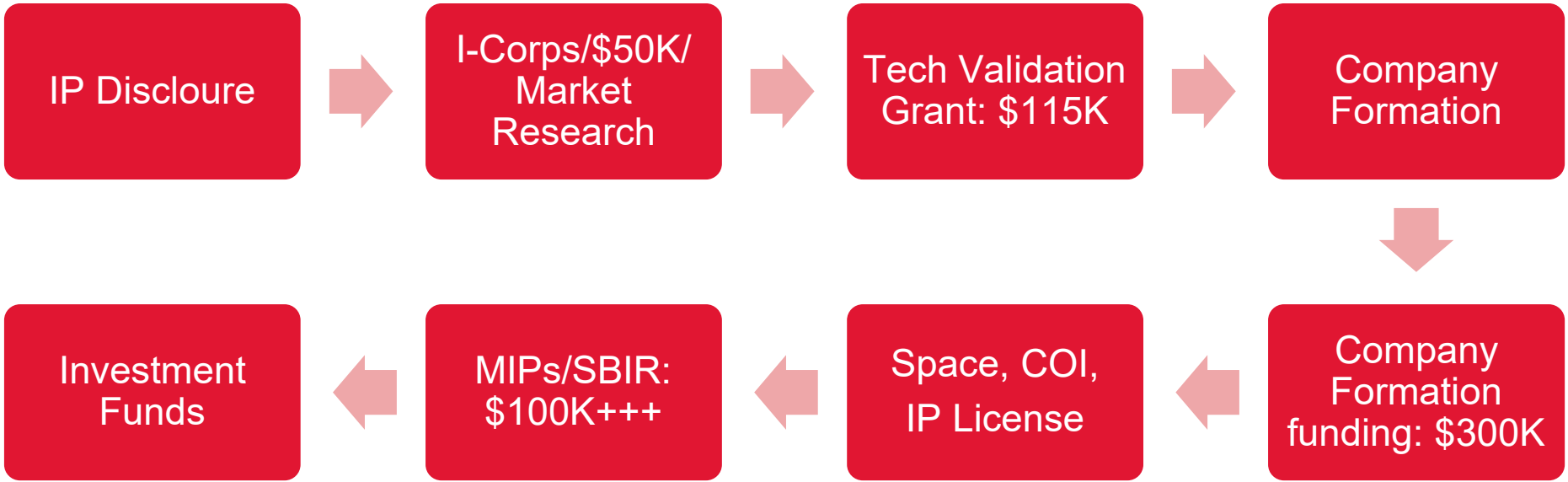
Veterans Business Outreach Center
- Training
- Counseling
- Referrals

Dingman Center for Entrepreneurship
- Student services
- Accelerator
- Funding
- Angel group

$1,000,000+ in Funding Opportunities

- ✓ $50K NSF I-Corps
- ✓ $25-$50K Medical Device Development Fund
- ✓ $415K TEDCO Maryland Innovation Initiative
- ✓ $90-180K+ Maryland Industrial Partnerships
- ✓ $100-250K Discovery Fund
- ✓ $150-500K Maryland Momentum Fund
- ✓ $50-250K Terrapin Fund
- ✓ $100-500K Chesapeake Bay Seed Capital Fund

Typical Path



Startup Fundamentals Workshop Series

Market research
Sales
Marketing
Pitching
Raising capital

Equity split
CxO team
Leadership
Company formation
Intellectual property

Business models
Industry focused sessions

…and many more

go.umd.edu/workshops2022

YouTube CHANNEL

https://www.youtube.com/c/StartupUMD

Regional/UMD I-Corps

- Focus on customer discovery
- 3 week program (virtual)
- Pathway to National I-Corps, increased chance for SBIR and other grants

Icorps.umd.edu

UNIVERSITY OF MARYLAND
UM VENTURES
COLLEGE PARK

NSF I-CORPS
NSF Innovation Corps

TEDCO MII: Technology Validation Grant

- $130,000 as research funding
- 9 months project to validate technology
- Salaries, equipment, materials, outside consultants/experts

go.umd.edu/aboutMII

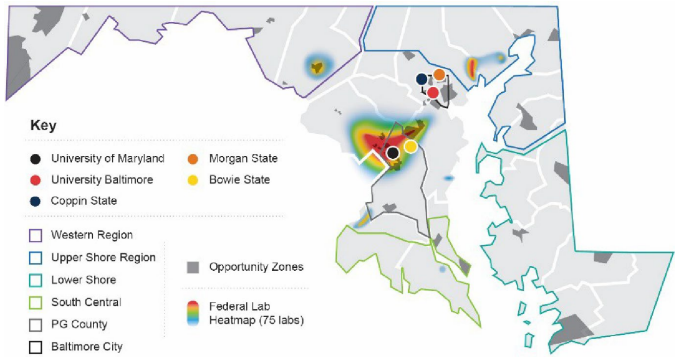
UNIVERSITY OF MARYLAND
UM VENTURES
COLLEGE PARK

TEDCO
LEADING INNOVATION TO MARKET

Maryland Innovation Extension UC

Activating regional capacity and training of innovative startups by expanding and sharing:

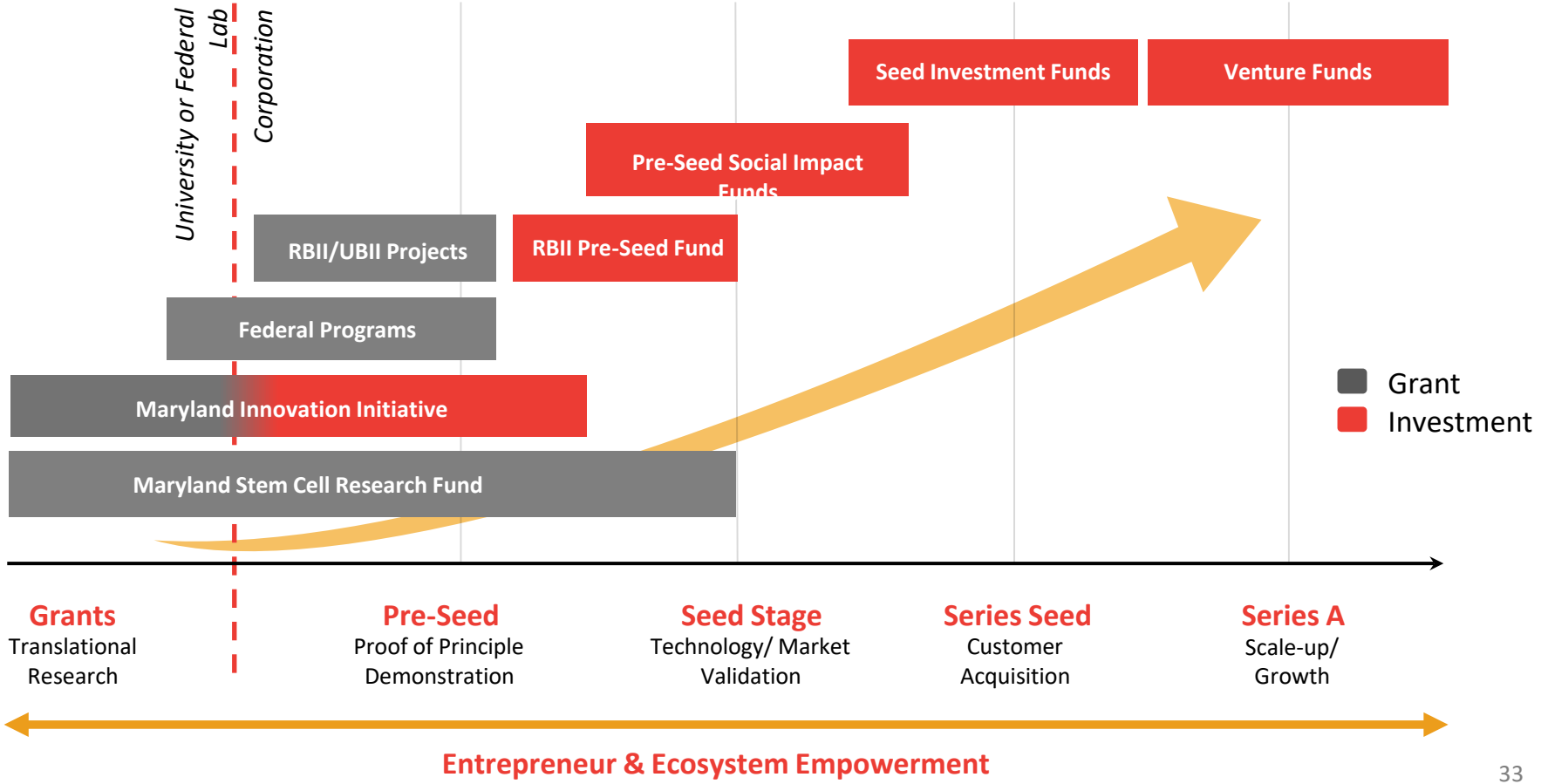
- Regional I-Corps
- Entrepreneurs in Residence
- Startup Fundamentals Workshop Series
- Best practices to manage tech transfer and startup programs



Connection to TEDCO & the Ecosystem

- Investments
- Prelude Pitch
- Marketing Toolkit
- SBIR Proposal Lab
- Network Advisors
- Entrepreneur Expo
- Business Roundtables
- Market Search Databases
- Start-up Orientation Forum
- Maryland Entrepreneur Hub
- Rural Business Innovation Initiative
- Urban Business Innovation Initiative

Overview of TEDCO's Funding Programs by Stage



Investments

Fostering the growth and scaling of strong companies in Maryland and providing economic and financial returns to the state.

- Pre-Seed (2): $100-200K Convertible Notes
- Seed (4): $100-500K Initial Investment
- Early-stage Venture Capital: Up to $1.5M

Maryland Innovation Initiative Fund

Maryland Innovation Initiative

Our Goal

To accelerate and market promising technologies with significant commercial potential from Maryland academic research institutions.

Program to Date

$52.3M
Invested

$740M
Follow-On Funding

176
Start-up companies created & supported

8
Exits

Federal Programs

Our Goal

To help Maryland businesses grow by helping them to make use of the public investment in science, technology, and innovation available through Federal Labs

Program to Date

$17.7M
SBIR Awards

90
Maryland Federal Labs

187
Companies supported

SBIR/STTR Proposal Lab

SBA FAST Grant Funding

TEDCO's Proposal Lab Team:

- GovCon Incubator (OST Global Solutions, Inc.)
- Maryland Small Business Development Center (SBDC)

The Lab has been running annually since 2018 and has achieved 2.5 times the national win rate for SBIR/STTR proposals and 5.8 times the national win rate for women-owned small businesses

Focused on Maryland small businesses, especially women-owned, small disadvantaged, and rural businesses

In addition to SBA's funds, the team contributes its own time and resources to develop and conduct the SBIR/STTR Proposal Lab, allowing for a low participant payment

U.S. Small Business Administration

GovCon Incubator

America's SBDC Accredited Member Maryland

Combination of Training, Hands-On Support and Reviews